VISIONQuest 20/20
Because Every Child Deserves To See

A Programmatic Approach to Childhood Vision Screenings

VisionQuest 20/20 is a 501 (c) (3) nonprofit organization with the mission to protect children from undetected vision disorders through vision screenings.

Our goal is to utilize recent advances in technology to develop and collaboratively implement a national vision screening model which supports universal vision screenings for children.

EyeSpy 20/20 - The Video Game Vision Screener

Ideal ages 5-12 years old.

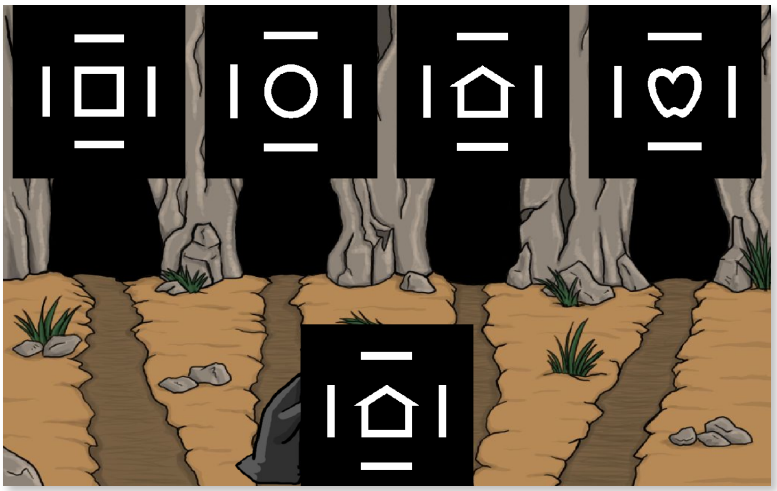
Approximately 250,000 vision screenings performed at more than 200 schools.

Distributed via Internet.

Standard Windows laptop computer. Testing at 5-10 feet (standard computer mouse with an extension cord or X-Box controller)

Based on AAP/AAPOS vision screening recommendations.

Age appropriate optotypes are automatically selected: Lea Symbols or ETDRS with crowding bars.



Matching game with option of "critical line" or "exact visual acuity" testing.

Abbreviated Amblyopia Treatment Study Protocol (2-3 minutes/child).

Automated implementation of logic protocol based on individual child's responses.

Computer randomization of optotypes eliminates possibility of memorization.

Protocol overview:

Binocular Pretest verifies comprehension

Right eye testing with occlusive eye patch or occluding glasses
Left eye testing with occlusive eye patch or occluding glasses

Rapid screen
Phase 1 Testing: Critical line or Threshold (3/4 correct=95% confidence)
Reinforcement (if needed)
Phase 2 Testing: Critical line or Threshold (3/4 correct =95% confidence)

Computerized Distance Stereopsis (if passes visual acuity both eyes) (optional)
Manual Near Stereopsis book (retest if fails distance stereo acuity) (optional)

Computerized Distance Color Vision testing (boys 5 and older who pass visual acuity testing) (optional)
Manual Near Color Vision book (retest if fails distance color testing) (optional)

Manual near vision acuity testing (optional)

Customizable to meet varied state mandates or individual program requirements.

EyeSpy 20/20 - The Vision Screening Data Collection Platform

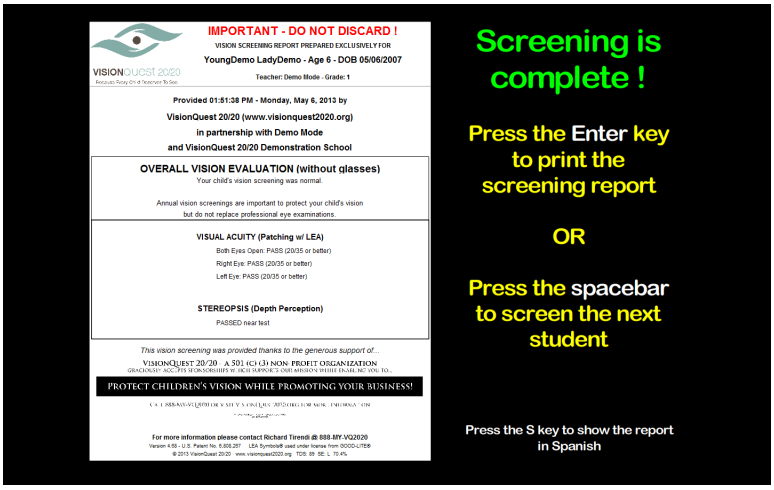
Approximately 250,000 vision screenings currently registered and stored.

Preload student rosters from school's EHR or manually register individual students.

Pass/Fail Reports (English or Spanish) generated automatically at completion of testing.

Vision screening data results stored locally on computer until uploaded via Internet.

Data sent to HIPAA-compliant data cloud automatically with establishment of a Internet connection and subsequently removed from computer for secured safeguarding.



Vision screening results and reports available 24/7 remotely via data cloud for authorized users.

Screening reports can be sorted by classroom, school, age, gender, ethnicity, pass/fail, etc.

EyeSpy 20/20 integrates with national school EHR systems for result archiving, follow-up purposes, compliance and epidemiological reporting to district and state.

Screening data can be exported to Microsoft Excel.

EyeSpy 20/20 platform collects and manages data for a variety of vision screening methodologies:

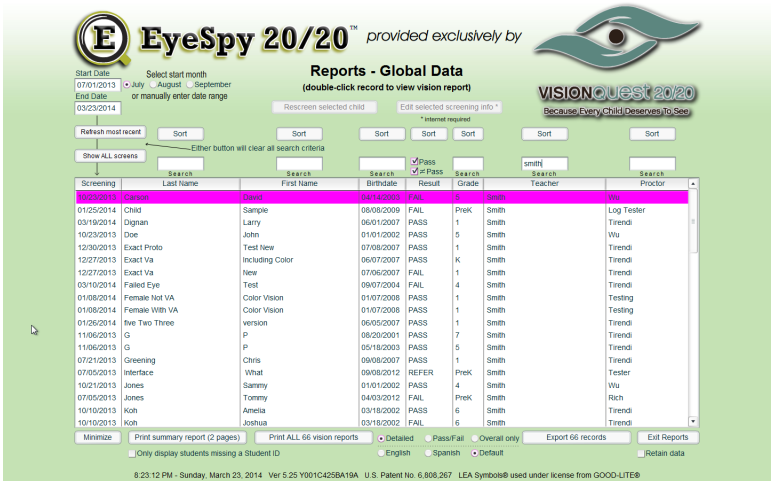
- Plusoptix S08, S09, S12 (jump drive or wireless network connection)
- Pediavision SPOT (wireless network connection)
- Welch Allyn Suresight (via infrared sensor)
- Traditional vision screenings (manual input)
- Hearing (manual input)

Any vision screening or sensory screening device with data output can be integrated.

Data reporting can be consolidated from a variety of different screening methods for a given program.

Results from complete eye examinations after children referred can be integrated if resources available (not yet developed).

VisionQuest 202/20's programmatic model provides the data collection and reporting platform to address the steps necessary for a successful vision screening program, regardless of which vision screening technology or technologies are selected for screening, and can accommodate new technologies as they are developed in the future.



HIGHLIGHTED RECOMMENDATIONS FOR CARE

Vision screening should be performed at an early age and at regular intervals throughout childhood. The elements of vision screening vary depending on the age and level of cooperation of the child. *(strong recommendation, moderate evidence)*

Age-Appropriate Methods for Pediatric Vision Screening and Criteria for Referral

Method	Indications for Referral	Recommended Age				
		Newborn–6 mos	6 mos and until child is able to cooperate for subjective VA testing	3–4 yrs	4–5 yrs	Every 1–2 yrs after age 5 yrs
Red reflex test	Absent, white, dull, opacified, or asymmetric	◆	◆	◆	◆	◆
External inspection	Structural abnormality (e.g., ptosis)	◆	◆	◆	◆	◆
Pupillary examination	Irregular shape, unequal size, poor or unequal reaction to light	◆	◆	◆	◆	◆
Fix and follow	Failure to fix and follow	Cooperative infant >3 mos	◆			
Corneal light reflection	Asymmetric or displaced		◆	◆	◆	◆
Instrument-based screening*	Failure to meet screening criteria		◆	◆	◆	◆
Cover test	Refixation movement			◆	◆	◆
Distance visual acuity† (monocular)	20/50 or worse in either eye			◆	◆	◆
	20/40 or worse in either eye				◆	◆
	Worse than 3 of 5 optotypes on 20/30 line, or 2 lines of difference between the eyes					◆

NOTE: These recommendations are based on panel consensus. If screening is inconclusive or unsatisfactory, the child should be retested within 6 months; if inconclusive on retesting or if retesting cannot be performed, referral for a comprehensive eye evaluation is indicated.[4]

VA = visual acuity

* Subjective visual acuity testing is preferred to instrument-based screening in children who are able to participate reliably. Instrument-based screening is useful for young children and those with developmental delays.

† LEA Symbols[5] (Good-Lite Co., Elgin, IL), HOTV, and Sloan Letters[6] are preferred optotypes.

Return on Investment Analysis: Local Public Health Funding

Strong Evidence for the Value of Population Health Investments

Michigan Association for Local Public Health

2013

Local Public Health Service	ROI (benefit per dollar invested)	Notes
Childhood Immunizations	$22 to 1	$88 Million saved in 2009
Flu Vaccinations	$11 to 1	$91 – $141 saved per vaccination (direct medical costs only)
STD Screening	$2.50 to 1	Through pelvic inflammatory disease prevention
Infectious Disease Surveillance	$2.00 to 1	Considering ONLY bacterial meningitis prevention
Hearing Screening	$112 to 1	From gains workers' future productivity
Vision Screening	$162 to 1*	From life-long disability prevention for kids
Food-borne Illness Surveillance	Epidemic Prevention	187 cases occurred in 2009 ($1.5 Million for treatment)
Drinking Water Protection and On-Site Sewage Management	Epidemic Prevention	Gastrointestinal outbreak, South Bass Island, Ohio

*The estimated ROI for vision screening based on use of Visual Acuity Screening (more robust). If Photoscreening is used instead, ROI drops to $142 to 1[20]